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10/550,653	11/15/2006	Susumu Noda	278705US40X PCT	1795

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EXAMINER	
SUCH, MATTHEW W	

ART UNIT	PAPER NUMBER
2891	

NOTIFICATION DATE	DELIVERY MODE
06/24/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/550,653	NODA ET AL.	
	Examiner	Art Unit	
	MATTHEW W. SUCH	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29,33 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29,33 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-29 and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawase (`102).

Claim interpretations: The examiner notes that claims 1-13 use the phrase "means for" in an attempt to invoke an interpretation under 35 U.S.C. 112, sixth paragraph. However, claims 1-13 fail to properly invoke an interpretation under 35 U.S.C. 112, sixth paragraph because the "means for" is modified by sufficient structure (see the phrase "the mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode" in claims 1-13, which is a modification by the structural limitation of "an unevenness which has a period"). Additionally, claims 14-34 further fail to properly invoke an interpretation under 35 U.S.C. 112, sixth paragraph because (i) the claims fail to use the phrase "means for"

(instead, see claim 14 which uses the phrase "means") and (ii) because the "means for" is further modified by sufficient structure (see the phrase "the mode conversion means is an optical structure..." in claim 14 which is an modification by structure). As such, if applicant wishes to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant is required to:

(a) Amend the claim to include the phrase "means for" or "step for" in accordance with these guidelines: the phrase "means for" or "step for" must be modified by functional language and the phrase must **not** be modified by sufficient structure, material, or acts for performing the claimed function; or

(b) Show that the claim limitation is written as a function to be performed and the claim does **not** recite sufficient structure, material, or acts for performing the claimed function which would preclude application of 35 U.S.C. 112, sixth paragraph. See MPEP § 2181.

Regarding the phrase "in this order on a substrate" in claims 1-13, the examiner notes that this language leaves open the interpretation of how the first electrode, organic EL layer, and second electrode are arranged relative to the substrate. For example, a stack of substrate / first electrode / organic EL layer / second electrode is in this order on the substrate just as much as substrate / second electrode / organic EL layer / first electrode since the elements of the first electrode, organic EL layer, and second electrode maintain "this order" relative to each other.

a. Regarding claim 1, Kawase teaches a light emitting device comprising at least one light emitting layer (Elements 230, 240, 250, at least) on a substrate (Elements 200, 210, at least). A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is on a surface of the substrate opposite to the

light emitting layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

b. Regarding claim 2, Kawase teaches a light emitting device comprising at least one light emitting layer (Element 240, at least) and a waveguide layer (see Elements 210, 220, 230, 250, 260, for example) on a substrate (Elements 200, 210). A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is on a surface of the substrate opposite to the light emitting layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

c. Regarding claim 3, Kawase teaches a light emitting device comprising a substrate (Element 200, 210) including, arranged in this order on the substrate, a first electrode (Element 220), an organic EL layer (Elements 230, 240, 250) and a second electrode (Element 260) opposed to the first electrode. A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is an interior of the organic EL layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

d. Regarding claim 4, Kawase teaches that the second electrode is a thin film metal electrode (Element 260, see Para. 0055, Line 10, for example).

e. Regarding claim 5, Kawase teaches an optical function layer (Element 210) having the mode conversion means for converting the waveguide mode (surface of Element 210) on an outer surface of the substrate (which is Element 200, 210; the "outer surface" since the optical function layer is not interior to the substrate), for example.

f. Regarding claim 6, Kawase teaches a light emitting device comprising a substrate (Element 200) including, arranged in this order on the substrate, a first electrode (Element 220), an organic EL layer (Elements 230, 240, 250) and a second electrode (Element 260) opposed to the first electrode. An optical function layer (Element 210) having the mode conversion means for converting the waveguide mode (surface of Element 210) on the substrate. A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is an interior of the organic EL layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

g. Regarding claim 7, Kawase teaches that the second electrode is a thin film metal electrode (Element 260, see Para. 0055, Line 10, for example).

h. Regarding claim 8, Kawase teaches a light emitting device comprising a substrate (Element 200) including, arranged in this order on the substrate, a first electrode (Element 220), an organic EL layer (Elements 230, 240, 250) and a second electrode (Element 260) opposed to the first electrode and a protective layer (Element 210). An optical function layer (Element 210) having the mode conversion means for converting the waveguide mode (surface of Element 210) on the substrate. A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is an interior of the organic EL layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

i. Regarding claim 9, Kawase teaches an optical function layer (Element 210) having the mode conversion means for converting the waveguide mode (surface of Element 210) on an outer surface of the substrate (which is Element 200, 210; the "outer surface" since the optical function layer is not interior to the substrate), for example.

j. Regarding claim 10, Kawase teaches a light emitting device comprising a substrate (Element 200) including, arranged in this order on the substrate, a first electrode (Element 220), an organic EL layer (Elements 230, 240, 250) and a translucent (Para. 0055, Lines 10-11) second electrode (Element 260) opposed to the first electrode. At least one waveguide layer (surfaces of any of Elements 210, 220, 230, 240, 250, 260) is formed on the substrate. A mode conversion means for (surface of Elements 210, 220,

230, 240, 250, 260, at least) converting a waveguide mode is an interior of the organic EL layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

k. Regarding claim 11, Kawase teaches a light emitting device comprising a transparent substrate (Element 200; Para. 0038, Line 3) including, arranged in this order on the substrate, a transparent (Para. 0056, Line 5) electrode (Element 220), an organic EL layer (Elements 230, 240, 250) and a translucent (Para. 0055, Lines 10-11) second electrode (Element 260) opposed to the first electrode. A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is an interior of the organic EL layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

l. Regarding claim 12, Kawase teaches an optical function layer (Element 210) having the mode conversion means for converting the waveguide mode (surface of Element 210) on an outer surface of the substrate (which is Element 200, 210; the "outer surface" since the optical function layer is not interior to the substrate), for example.

m. Regarding claim 13, Kawase teaches a light emitting device comprising a transparent substrate (Element 200; Para. 0038, Line 3) including, arranged in this order

on the substrate, a transparent (Para. 0056, Line 5) electrode (Element 220), an organic EL layer (Elements 230, 240, 250) and a translucent (Para. 0055, Lines 10-11) second electrode (Element 260) opposed to the first electrode. At least one waveguide layer (surface of or layer of any of Elements 210, 220, 230, 240, 250, 260) is formed on the transparent substrate. A mode conversion means for (surface of Elements 210, 220, 230, 240, 250, 260, at least) converting a waveguide mode is an interior of the organic EL layer, for example. The mode conversion means includes an unevenness which has a period to prohibit a propagation of light in a waveguide mode (see Para. 0044-0056, for example).

n. Regarding claim 14, Kawase teaches that the mode conversion means is an optical structure having a regularity of a refractive index distributions in a one-, two-, or three dimensional direction (see Para. 0044-0056; Fig. 7-8, for example).

o. Regarding claim 15, Kawase teaches that the regularity is a period of an effective wavelength degree of the light emitted from the organic EL layer, since the claim does not limit what is effective and what is not effective.

p. Regarding claim 16, Kawase teaches more than two mode conversion means having the regularity of the same period (see Fig. 8).

q. Regarding claim 17, Kawase teaches that the regularity has a fluctuation of not more than one fourth of the period of an effective wavelength degree of the light emitted from the organic EL layer since the claim fails to limit the wavelength of light emitted and to what degree it is effective (see Fig. 7 and associated text).

r. Regarding claim 18, Kawase teaches that the mode conversion means has at least two optical structures (see repeated structures in Figs. 7-9) with the regularity of the refractive index distribution in the two-dimensional direction, and the regularity of the optical structures has a different period within the fluctuation range for each optical structure.

s. Regarding claim 19, Kawase teaches that the two or more optical structures are formed in the same two-dimensional plane (see Figs. 7-9, for example).

t. Regarding claim 20, Kawase teaches that a period of an effective wavelength degree of the light emitted from the organic EL layer coexists with a fluctuation of not more than one fourth of the period of the effective wavelength degree since the claim fails to limit the wavelength of light emitted and to what degree it is effective (see Fig. 7 and associated text).

u. Regarding claim 21, Kawase teaches that the period of regularity changes gradually (see Fig. 8C, for example).

v. Regarding claim 22, Kawase teaches that the regularity of the refractive index distribution in the two-dimensional direction an arrangement which can fill up a plane with a finite number of unit elements (see Figs. 7-9, for example).

w. Regarding claim 23, Kawase teaches that the regularity of the refractive index distribution is formed of a material having a higher refractive index than a material lacking the regularity to the refractive index distribution since the claim fails to limit what "a material lacking the regularity to the refractive index distribution" is, so it can be, for example, air.

x. Regarding claim 24, Kawase teaches that the material having a high refractive index is transparent to the light emitted from the organic EL layer (see Figures).

y. Regarding claim 25, Kawase teaches that the regularity of the refractive index distribution is formed of a material having a lower refractive index than a material lacking the regularity of the refractive index distribution since the claim fails to limit what "a material lacking the regularity to the refractive index distribution" is, so it can be, for example, air.

z. Regarding claim 26, Kawase teaches that the material having a low refractive index is transparent to the light emitted from the organic EL layer (see Figures).

aa. Regarding claim 27, Kawase teaches that the material having a low refractive index is a gas, such as air.

bb. Regarding claim 28, Kawase teaches that the gas is air.

cc. Regarding claim 29, Kawase teaches that the optical structure is formed of an unevenness of a boundary having the regularity in one- or two- dimensions.

dd. Regarding claim 33, Kawase teaches that the organic EL layer has a different wavelength emitted light wavelength depending on the area, since the claim does not limit how it depends on the area, so any configuration meets the claim.

ee. Regarding claim 34, Kawase teaches that the conversion means is the optical structure having the regularity of the refractive index distribution in the one-dimensional, two-dimensional or three-dimensional direction corresponding to the different emitted light wavelength since the claim does not limit how they correspond.

Response to Arguments

4. Applicant's arguments with respect to claims 1-29 and 33-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Koyama (`620, `335 and WO `664) teach organic EL devices with waveguide mode conversion means formed in or on various layers of the devices.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW W. SUCH whose telephone number is (571)272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kiesha Bryant can be reached on (571) 272-1844. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew W. Such/
Primary Examiner, Art Unit 2891